

Date: Thursday, 11/09/2008 10:42:46 AM  
 User: Julie Lecocq

## Process Sheet

<b>Customer</b> :	CU-DAR001 Dart Helicopters Services	<b>Drawing Name</b> :	MID TUBE ASSEMBLY
<b>Job Number</b> :	41980		
<b>Estimate Number</b> :	10469		
<b>P.O. Number</b> :		<b>Part Number</b> :	D3391023
<b>This Issue</b> :	11/09/2008	<b>S.O. No.</b> :	
<b>Prsht Rev.</b> :	NC	<b>Drawing Number</b> :	D3391 REV H
<b>First Issue</b> :	//	<b>Project Number</b> :	N/A
<b>Previous Run</b> :	41979	<b>Drawing Revision</b> :	H
<b>Written By</b> :		<b>Material</b> :	
<b>Checked &amp; Approved By</b> :	JLD 08.9.11	<b>Due Date</b> :	10/10/2008
<b>Comment</b> :	Est. A 05.10.20 New Issue KJ/EC Est. B 06.02.10 ECN773 dwg rev.D EC est C 07.03.20 rev F dwg EC est D 07.03.28 re-format EC est E 07.10.31 ecn 1053P EC Est Rev:F ECN 1056 07-11-13 DD verified by: EC Est Rev:G 08-09-08 new process (ecn 08-510) DD verified by:EC Est Rev:H 08-09-10 revH as per dwg DD verified by:EC		
<b>Qty:</b>	1	<b>Um:</b>	Each

## Additional Product

Job Number:



<b>Seq. #:</b>	<b>Machine Or Operation:</b>	<b>Description :</b>
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1.0	D25001100	Skidtube Extrusion
-----	-----------	--------------------



**Comment:** Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

SKIDTUBE EXTRUSION

Pick:

Qty	Part Number	Description
1	D2500-1-100	Extrusion

Batch

B37065

JD 8-9-23

2.0	D3391021	Fwd Tube Assembly
-----	----------	-------------------



**Comment:** Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Fwd Tube Assembly

Batch: B41835

JD 8-12-22

3.0	SKIDTUBES 1	SKIDTUBESS RESOURCE 1
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**Comment:** LANDING GEAR RESOURCE 1

1-Cut tube to finish length as per Dwg D3391

2-Identify as D3391-023

3-Drill pilot holes using DT8796 (Do not drill "B" holes) and drill only 1 fwd saddle hole on one side only as per Dwg D3391

JD 8-9-23  
 8-12-22

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

Date: Thursday, 11/09/2008 10:42:46 AM  
User: Julie Lecocq

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: MID TUBE ASSEMBLY

Job Number: 41980

Part Number: D3391023

Job Number:



Seq. #:

Machine Or Operation:

Description :

- 4-Open saddles and GHW holes to Ø0.375" except for fwd saddle hole of detail "J"
- 5-Remove .030" from Fwd indexing Ridge as per Dwg D3391
- 6-Remove indexing ridge on Fwd & Aft end of skidtube as per Dwg D3391
- 7-Deburr
- 8-Drill #30 pilot holes using wearplate Jig DT8217 Identify Ø0.250" holes with paint marker,
- 9-Open wearplate holes of D3391-023 assembly detail section G-G to Ø0.250" (14 holes) as per Dwg D3391 and 2 holes in section Detail "J", do not open wearplate holes of section "J"
- 10-Open wearplate holes of D3391-023 assembly detail section H-H to Ø0.297" (20 holes) as per Dwg D3391
- 11-Open .375" holes to .438" \*\*\*do not open fwd saddle holes\*\*\*
- 12-Locate D3391-021 in D3391-023 at 9.00" (see view z-z)
- 13- Transfer drill one fwd saddle hole only to .188" dia, transfer drill all remaining fwd saddle holes using DT 8149 locating from previously drill .188" dia hole, using t-pins and clicos to ensure perfect allingment, open up previously tranfer drilled pilot holes in D3391-023/-021 to 0.438" dia. in D3391-021
- 14- Transfer drill 2 wearplate holes into D3391-021 using DT8217, locating from two previously drilled holes, drill remaining wearplate holes into D3391-021.
- 15- Locating from two fwd wearplate holes drill remaining 6 wearplate holes in D3391-021 using DT8937
- 16- Open 2 fwd wearplate holes in D3391-023 to .250" dia.
- 17- counterbore two aft wearplate holes in D3391-021 as per dwg
- 18- Open 12 wearplate holes in D3391-021 to 0.297" dia.
- 19-Deburr and blow out all chips from inside tube

JB 8-9-23

M  
2-15-22

PTO

4.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

S 00/10/22 (70)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D 3391-023 PAR #: N/A Fault Category: Res - Sudhe NCR: Yes No DQA: A Date: 08.11.28  
 Resolution: accepted Disposition: use-as-is QA: N/C Closed: ✗ Date: 08/12/02

NCR: 41980		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
08-09-23	3.6	Inner index ridge had been removed up to .800" from the end, at each end of the tube. Should be .700" per dwg. Employee had been trained. R.C: Lack of Attention.	<i>[Signature]</i> QSIW12	- Tube is acceptable per attached e-mail. - Re-train Employee, and record on the Job training sheet, and practice on a samples for training	<i>[Signature]</i> JD 8-9-29	<i>[Signature]</i> 08/10/22	<i>[Signature]</i> 08/11/22	<i>[Signature]</i> 08-09-23
08.	<del>3.10</del> 3.10	The 7 aft wear plate holes were opened to 0.297 (same as the rest of the holes), instead of 0.250". R.C: Human error,	<i>[Signature]</i> QSIW12	Holes acceptable as is. Ensure to completely verify all dwg details prior to following through with I.P.R. instructions.	<i>[Signature]</i> H 8-11-10	<i>[Signature]</i> 08-11-10	<i>[Signature]</i> QSIW12	<i>[Signature]</i> 08-11-10

NOTE: Date & initial all entries

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## Process Sheet

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Drawing Name: MID TUBE ASSEMBLY

Job Number: 41980

Part Number: D3391023

Job Number:



Seq. #:

Machine Or Operation:

Description :

5.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Chemical Conversion Coat as per QSI 005 4.1

*DP/ME*

*8-10-22*

6.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

*BE 8-11-10*

7.0

D33891

Web



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

WEB

Pick:

Qty

Part Number

Description

Batch

1

D3389-1

Web

*B41833*

A/R

Sikaflex-241/-291

*M109449*

Sikaflex expire date:

*8-11-30*

Start: *8-11-10* Time: *8:00AM*

Finish: *8-11-10* Time: *5:00pm*

8.0

SKIDTUBES 1

SKIDTUBESS RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Open float bag holes as per dwg

2-C'sink float bag holes as per dwg

3- Prepare tube for welding

4-Bond web in place as per Dwg D3391 & QSI 015.

Adhere for 12 hours)

*DP*  
*8-11-10*

9.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

*06-11-11*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

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Drawing Name: MID TUBE ASSEMBLY

Job Number: 41980

Part Number: D3391023

Job Number:



Seq. #:

Machine Or Operation:

Description :

10.0

D36811

Spacer



Comment: Qty.: 5.0000 Each(s)/Unit Total: 5.0000 Each(s)

SPACER

batch: 341248

BE 08/11/13

11.0

SKIDTUBES 1

SKIDTUBESS RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

Weld crossbolt spacer as per dwg D3391 & QSI 004

A/R M 109813  
BE 08/11/13

12.0

QC10

VISUAL INSPECTION OF GROUND WELDS



Comment: VISUAL INSPECTION OF GROUND WELDS

08-11-13 (1)

13.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

08-11-13 (1)

14.0

POWDER COATING

POWDER COATING



Comment: POWDER COATING

Powder Coat White Gloss (Ref: 4.3.5.1) as per QSI 005 4.3

START TIME: 11:00

OVEN TEMPERATURE: 325 OF

FINISH TIME: 11:30

M109152

(1X)

M-L 08/11/20

15.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

08-11-21 (1)

16.0

D35911

Bushing



Comment: Qty.: 2.0000 Each(s)/Unit Total: 2.0000 Each(s)

Bushing

BE 043172

FL

(1)

17.0

SKIDTUBES 1

SKIDTUBESS RESOURCE 1



Comment: SKIDTUBESS RESOURCE 1

1- insert D3391-021 into D3391-23

M / FL 08/11/21 (1)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



Date: Thursday, 11/09/2008 10:42:47 AM  
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## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: MID TUBE ASSEMBLY

Job Number: 41980

Part Number: D3391023

Job Number:



Seq. #:

Machine Or Operation:

Description :

2- insert T-pins into first and third fwd saddle holes

3- ON FIRST SIDE ONLY drill out 2nd and forth fwd saddles holes to 0.500" as per DSI 9364

4- remove T-pins and locate DT9415 from first and third crossbolt hole using T-pins and clekos

5- ON 2ND SIDE ONLY ream out 2nd and forth saddle hole to 0.499". Remove DT9415

6- deburr, re-alodine and blow out chips

7- press fit D3591-1 spacers using DT9416 starting from 0.500" side

FL/90  
08/11/21 (1)

18.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

08-11-24 (1)

19.0

ALS41032130

Insert



Comment: Qty.: 22.0000 Each(s)/Unit Total : 22.0000 Each(s)

INSERT

batch: M105819

or equivalent

per QSI 017

HL

20.0

ALS41032225

Insert



Comment: Qty.: 10.0000 Each(s)/Unit Total : 10.0000 Each(s)

INSERT

batch: N/A

or equivalent

per QSI 017

Schubert

21.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Install Inserts as per Dwg

HL 08-11-24 (X)

22.0

QC5

INSPECT WORK TO CURRENT STEP




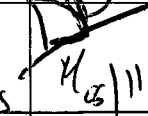

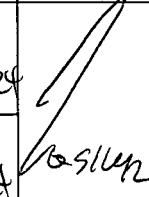
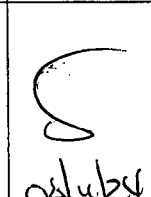

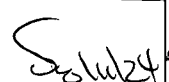

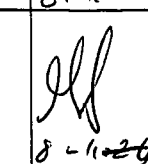
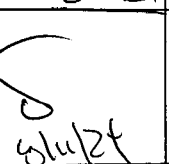

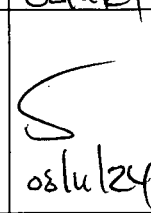
Comment: INSPECT WORK TO CURRENT STEP

08-11-24 (1)

(P10)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D3391-023 PAR #: N/A Fault Category: Res - Skidplate NCR: (Yes) No DQA: JA Date: 08/12/01  
D412-742-043  
 Resolution: Re-work Disposition: Re-work QA: N/C Closed: JA Date: 08/12/02

NCR: 41980		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
8/12/24	#22.0	• Oil saddle and <del>fit</del> Ground handling holes in the aft and of the main tank were not opened to $\phi$ .438 <del>fin</del> finished size		open holes to correct dia and Deburr and Blow out chips	 8/11/24	 8/12/24		
				Touch up with alodine	 8-11-24	 8/12/24		
		holes are 0.375". Both sides R.C employee didn't open hole at step #3.11		Touch up hole with Furpen.	 8-11-24	 8/12/24		

NOTE: Date &amp; initial all entries

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: MID TUBE ASSEMBLY

Job Number: 41980

Part Number: D3391023

Job Number:



Seq. #:

Machine Or Operation:

Description :

23.0

D3401041

Tow Cap Assembly



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)  
Tow Cap Assembly

Pick:

Qty	Part Number	Description	Batch
1	D3401-041	Tow Cap	N/A

24.0

D356413

Wearshoe



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)  
WEARSHOE

25.0

D356613

Gasket



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)  
GASKET

26.0

D36721

Phenolic Washer



Comment: Qty.: 4.0000 Each(s)/Unit Total: 4.0000 Each(s)  
PHENOLIC WASHER

27.0

AN3C4A

BOLT



Comment: Qty.: 10.0000 Each(s)/Unit Total: 10.0000 Each(s)  
Bolt

Pick:

Qty	Part Number	Description	Batch
4	AN3C4A	Bolt	N/A

28.0

AN960C10L

washer



Comment: Qty.: 10.0000 Each(s)/Unit Total: 10.0000 Each(s)  
washer

29.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: SMALL & MEDIUM FAB RESOURCE 1  
Install tow Cap as per Dwg D3391  
Identify as D3391-021

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

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## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: MID TUBE ASSEMBLY

Job Number: 41980

Part Number: D3391023

Job Number:



Seq. #:

Machine Or Operation:

Description :

30.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

Inspect thread of each insert using DT8821

*Sosulze @*

31.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock

Location: \_\_\_\_\_

*11/4/685 P-84/200*

32.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

*08/11/27*

Job Completion



*U 08-4-27*

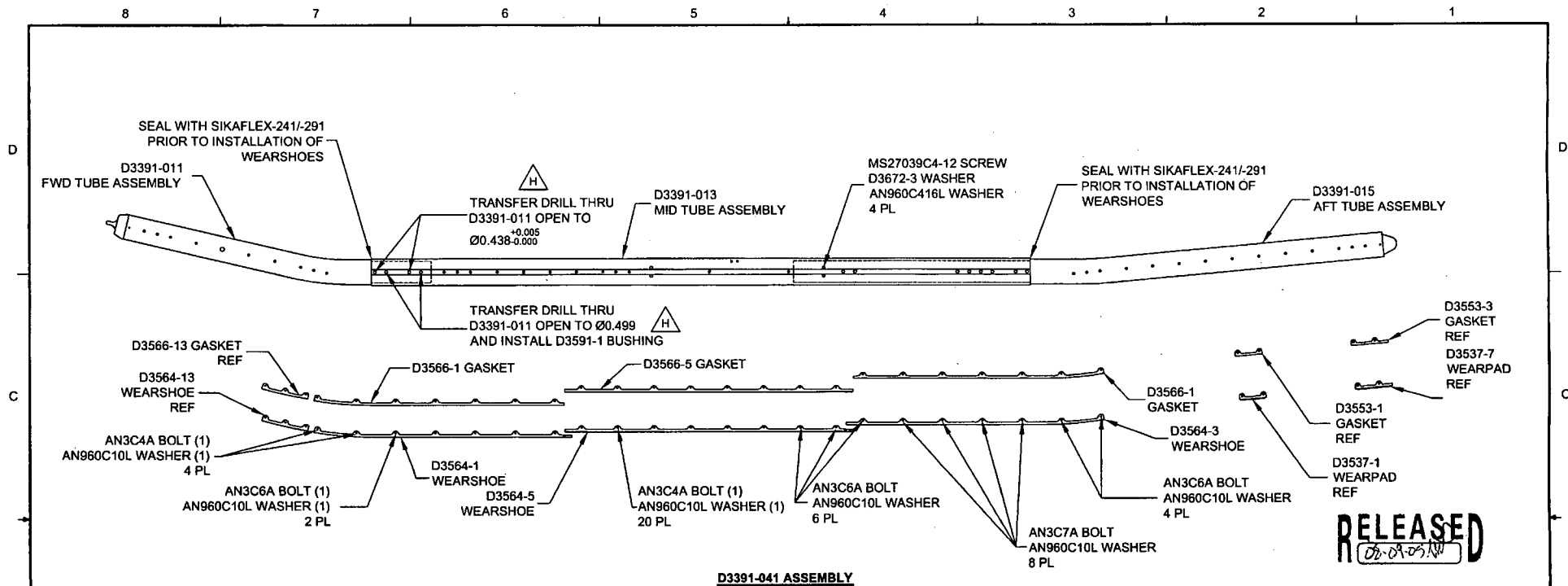
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



**D3391-041 ASSEMBLY**

**D3391-041 FLOAT SKIDTUBE ASSEMBLY PARTS LIST**

QTY	PART NUMBER	DESCRIPTION
1	D3391-041	FLOAT SKIDTUBE ASSEMBLY
1	D3391-011	FWD TUBE ASSEMBLY
1	D3391-013	MID TUBE ASSEMBLY
1	D3391-015	AFT TUBE ASSEMBLY
1	D3564-1	WEARSHOE
1	D3564-3	WEARSHOE
1	D3564-5	WEARSHOE
2	D3566-1	GASKET
1	D3566-5	GASKET
2	D3591-1	BUSHING
4	D3672-3	WASHER
24	AN3C4A	BOLT
24	AN3C6A	BOLT
24	AN3C7A	BOLT
24	AN960C10L	WASHER
24	MS27039C4-12	SCREW
24	AN960C416L	WASHER

**GENERAL NOTES**

- 1) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
- 2) SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH  
AND AFTER INSTALLATION OF INSERTS. COAT ALL EXPOSED FASTENERS WITH  
LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY. CLEAN EXCESS  
OFF POWDER COATING WITH MEK DEGREASER.
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL Ø0.297 SIZE HOLES  
FOR WEARSHOE INSERTS. C'BORE AS NOTED AND INSTALL INSERTS EXCEPT  
WHERE INDICATED.

H	DRAWING UPDATED TO CURRENT STANDARDS. SHT 1 PL ADDED D3591-1 BUSHING. ZN C6 Ø0.438 DIM WAS 4 PL. ADDED Ø0.499 DIM AND D3591-1 BUSHING. SHT 2 PL ADDED D3591-1 BUSHING. ZN C6 Ø0.438 DIM WAS 4 PL. ADDED Ø0.499 DIM AND D3591-1 BUSHING. (FOR FURTHER INFO SEE DSI 9364 & NCR 08-074)	AJS	08.08.20
G	REPLACE NAS INSERTS W/ AELS INSERTS SWITCH TO D3670-XXXX SPACERS FOR INSTALLING FLOAT BAGS, DWG REORGANIZED FOR CLARITY	DC	07.07.31
F	ADD SS WEARSHOE, GASKET REMOVE FWD SADDLE HOLE -011/-021	PH	07.01.18
E	CHANGE TOLERANCE, EASE MANUFACTURE	PH	06.04.25
D	UPDATE TOLERANCE, CHANGE HOLE SIZE	PH	06.01.23
C	LENGTHEN AFT EXTENSION	PH	05.09.27
B	DRAWING UPDATES	PH	05.06.10
A	NEW ISSUE	PH	05.02.07
REV.	DESCRIPTION	BY	DATE
DESIGN	PH		
DRAWN	AJS		
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	08.08.20		

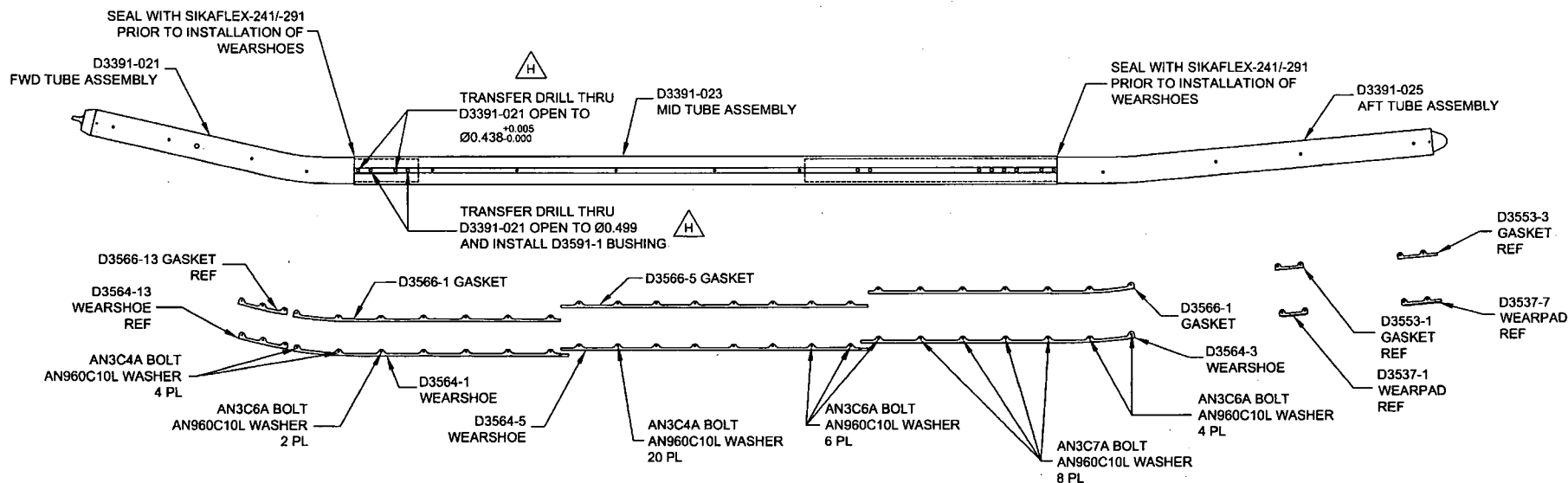
**DART AEROSPACE USA, INC**  
PORT HADLOCK, WA

DRAWING NO. REV. H  
D3391 SHEET 1 OF 8

TITLE SCALE  
412 FLOAT SKIDTUBE NTS

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**D3391-043 ASSEMBLY**

**D3391-043 FLOAT SKIDTUBE ASSEMBLY PARTS LIST**

QTY	PART NUMBER	DESCRIPTION
X	D3391-043	FLOAT SKIDTUBE ASSEMBLY
1	D3391-021	FWD TUBE ASSEMBLY
1	D3391-023	MID TUBE ASSEMBLY
1	D3391-025	AFT TUBE ASSEMBLY
1	D3564-1	WEARSHOE
1	D3564-3	WEARSHOE
1	D3564-5	WEARSHOE
2	D3566-1	GASKET
2	D3566-5	GASKET
2	D3591-1	BUSHING
24	AN3C4A	BOLT
12	AN3C6A	BOLT
6	AN3C7A	BOLT
48	AN960C10L	WASHER

**GENERAL NOTES**

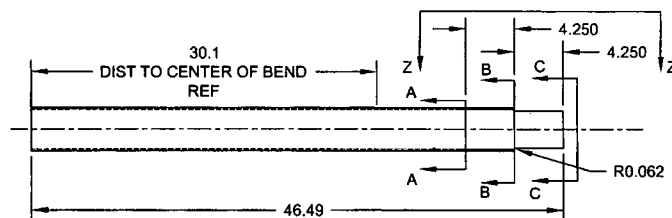
- 1) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
- 2) SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH AND AFTER INSTALLATION OF INSERTS. COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF POWDER COATING WITH MEK DEGREASER.
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL Ø0.297 SIZE HOLES FOR WEARSHOE INSERTS. C'BORE AS NOTED AND INSTALL INSERTS EXCEPT WHERE INDICATED.

**RELEASED**  
28.09.05/10

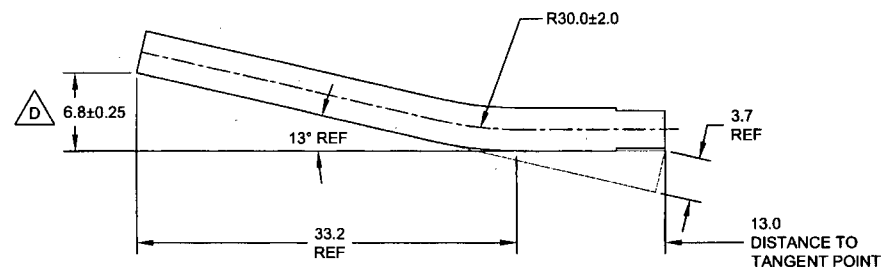
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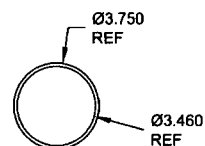




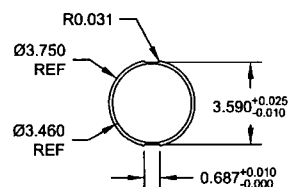
**D3391-1 CUTTING DETAIL**  
(MAKE FROM D6013-047 SKIDTUBE MATERIAL)



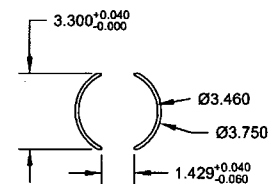
**D3391-011/-021 BENDING DETAIL**  
(MAKE FROM D3391-1)



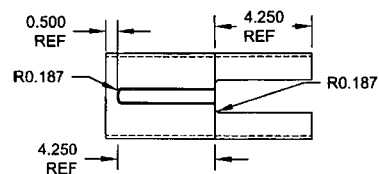
**SECTION A-A**  
SCALE 2X



**SECTION B-B**  
SCALE 2X



**SECTION C-C**  
SCALE 2X

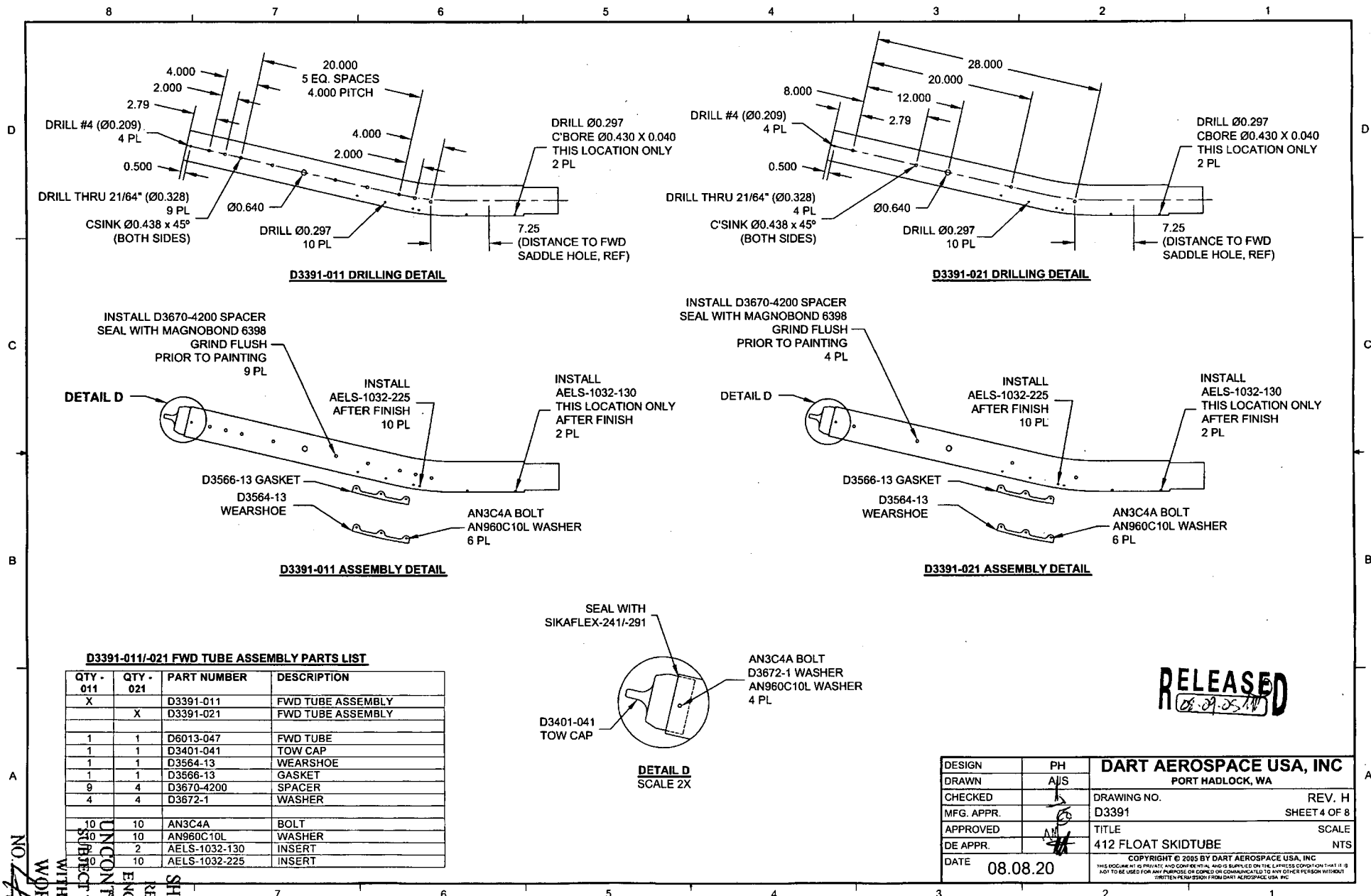


**VIEW Z-Z**  
SCALE 2X

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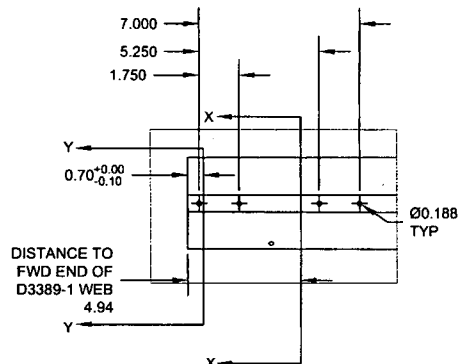
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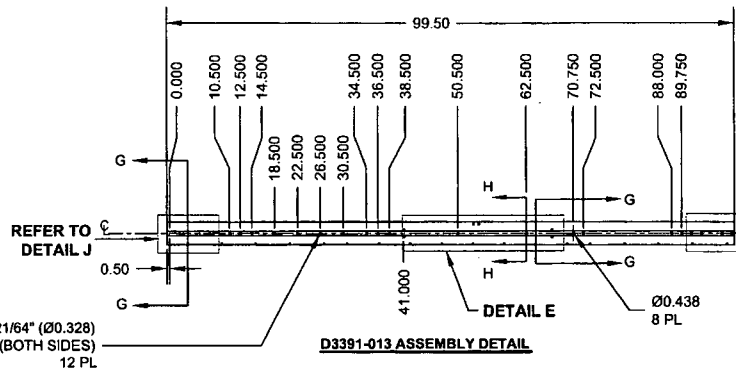
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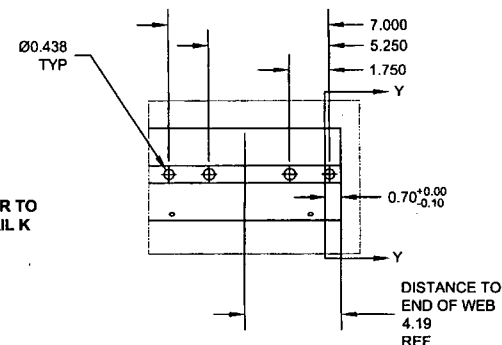


DETAIL J  
SCALE 4X

DRILL THRU 21/64" (Ø0.328)  
CSINK Ø0.438 X 45° (BOTH SIDES)  
12 PL



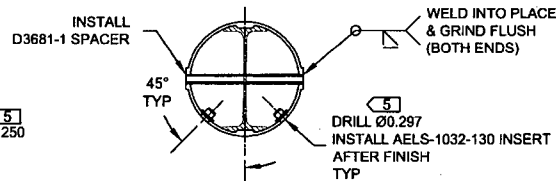
D3391-013 ASSEMBLY DETAIL



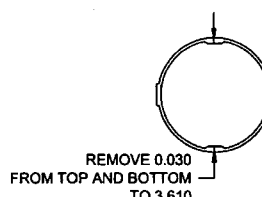
DETAIL K  
SCALE 4X



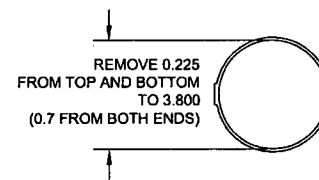
SECTION G-G  
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SECTION H-H  
SCALE 5X



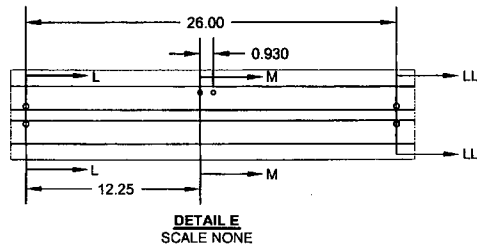
SECTION X-X  
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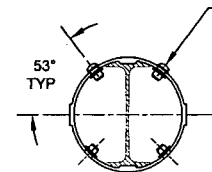
SECTION Y-Y  
SCALE 5X

D3391-013 MID TUBE ASSEMBLY PARTS LIST

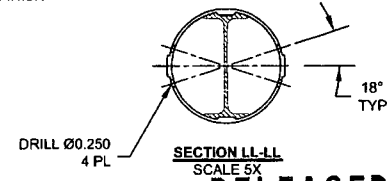
QTY -013	PART NUMBER	DESCRIPTION
X	D3391-013	MID TUBE ASSEMBLY
1	D2500-1-100	EXTRUSION
1	D3389-1	WEB
4	D3672-1	WASHER
4	D3672-3	WASHER
12	D3681-1	SPACER
24	AELS-1032-130	INSERT
4	ALS4-428-165	INSERT
4	AN960C10L	WASHER
4	AN960C416L	WASHER
4	MS27039C1-09	SCREW
4	MS27039C4-08	SCREW



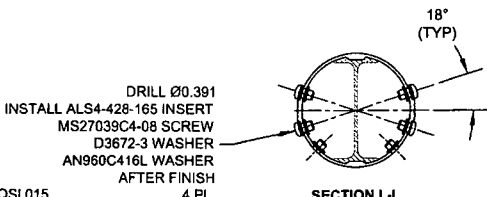
DETAIL E  
SCALE NONE



SECTION M-M  
SCALE 5X



SECTION LL-LL  
SCALE 5X



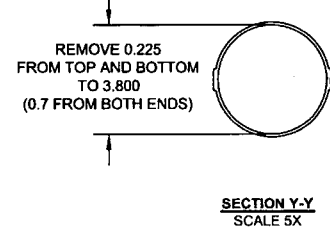
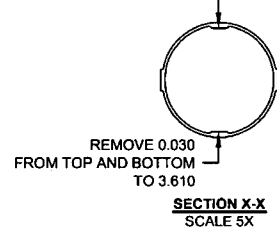
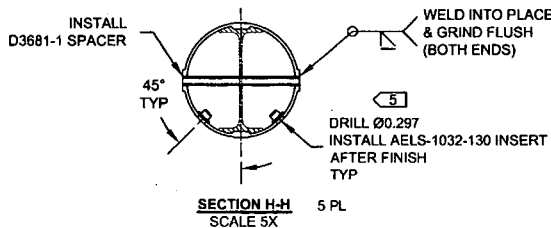
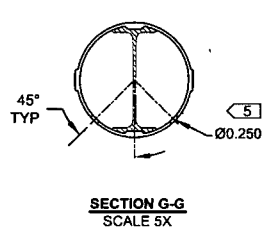
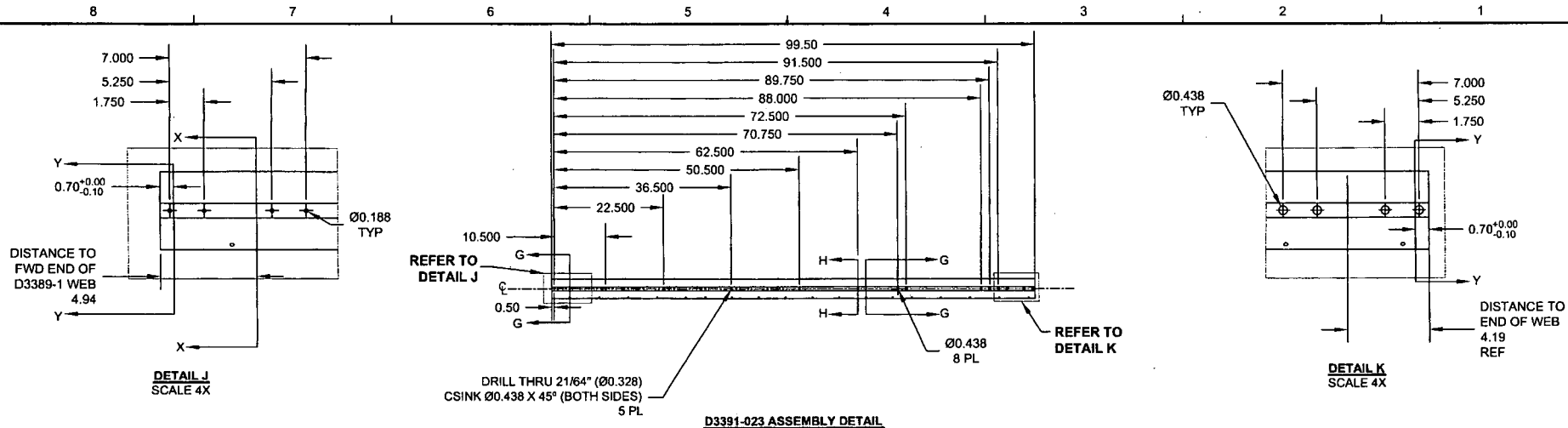
SECTION L-L  
SCALE 5X

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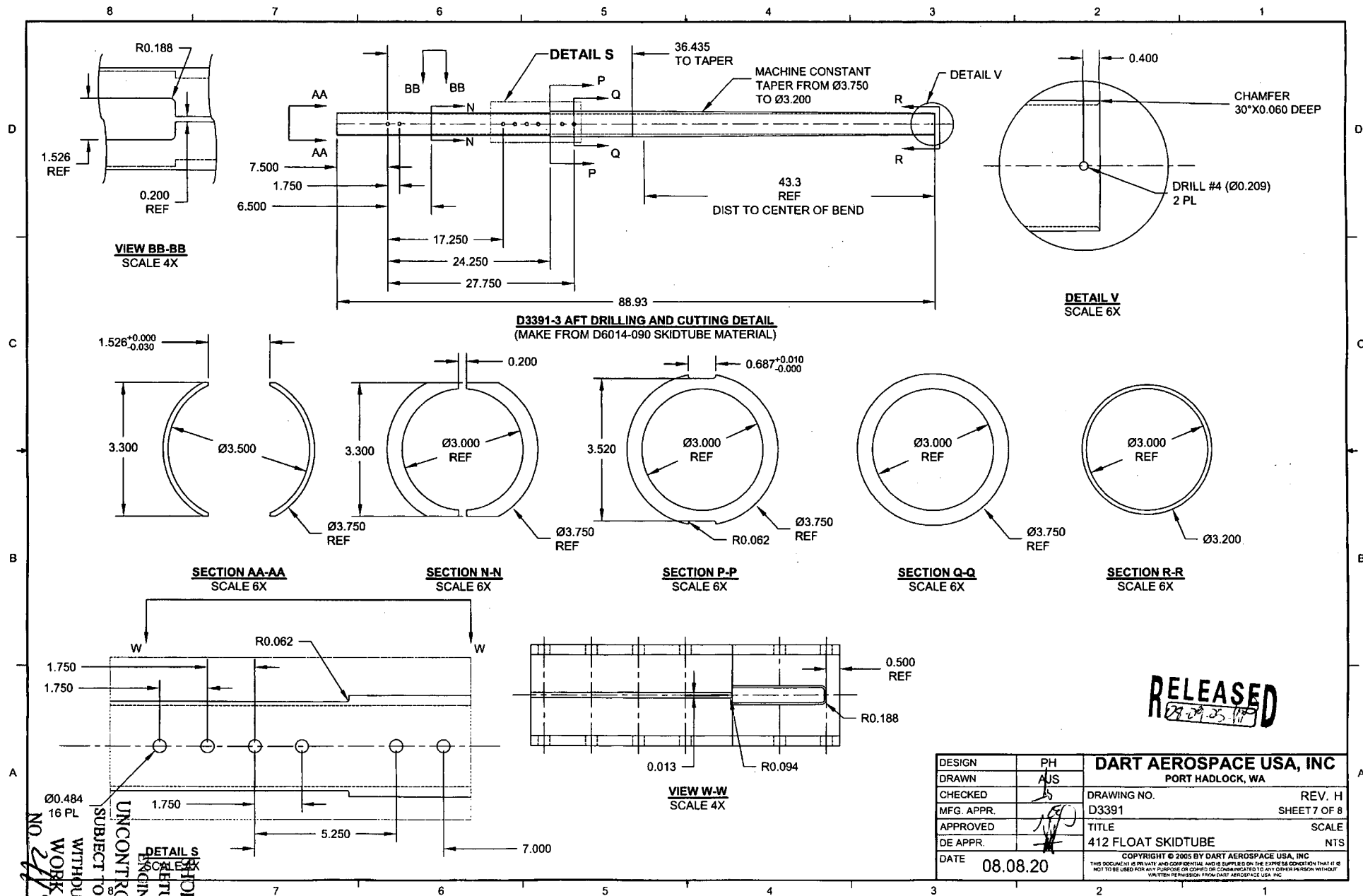
**D3391-023 MID TUBE ASSEMBLY PARTS LIST**

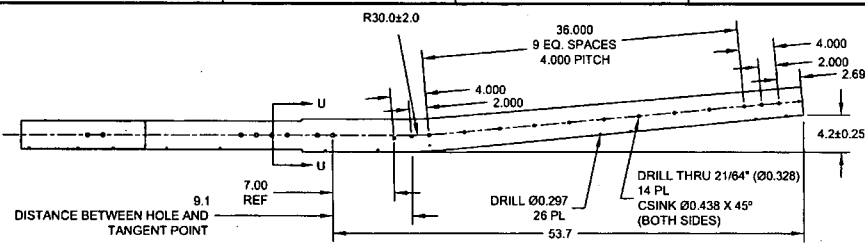
QTY - 023	PART NUMBER	DESCRIPTION
X	D3391-023	MID TUBE ASSEMBLY
1	D2500-1-100	EXTRUSION
1	D3389-1	WEB
5	D3681-1	SPACER
20	AELS-1032-130	INSERT

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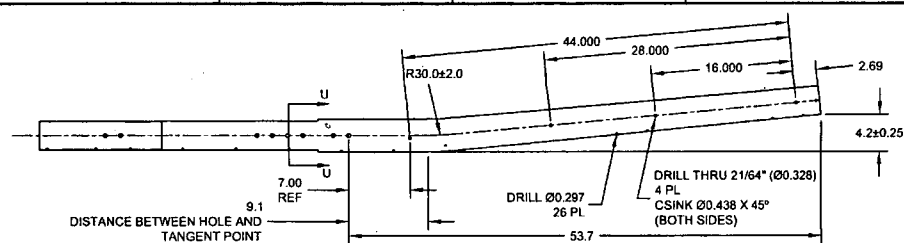
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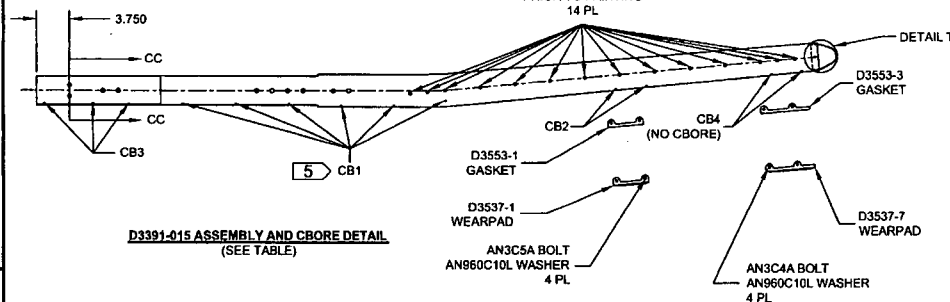
**D3391-015 BENDING AND DRILLING DETAIL**  
(SEE CBORE DETAIL BELOW)

INSTALL D3670-4200 SPACER  
SEAL WITH MAGNOBOND 6398  
GRIND FLUSH  
PRIOR TO PAINTING  
14 PL

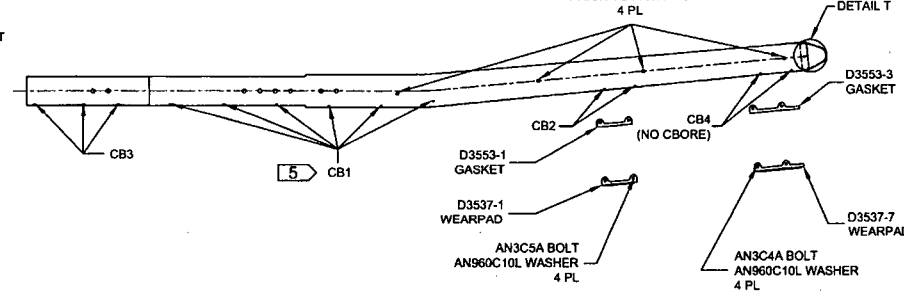


**D3391-025 BENDING AND DRILLING DETAIL**  
(SEE CBORE DETAIL BELOW)

INSTALL D3670-4200 SPACER  
SEAL WITH MAGNOBOND 6398  
GRIND FLUSH  
PRIOR TO PAINTING  
4 PL



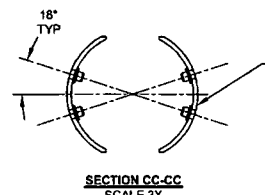
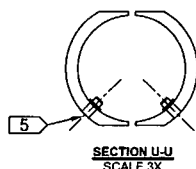
**D3391-015 ASSEMBLY AND CBORE DETAIL**  
(SEE TABLE)



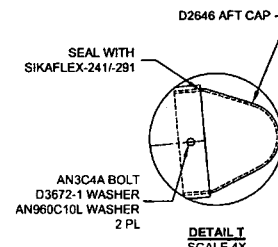
**D3391-025 ASSEMBLY AND CBORE DETAIL**  
(SEE TABLE)

**D3391-015-025 AFT TUBE ASSEMBLY PARTS LIST**

QTY - 015	QTY - 025	PART NUMBER	DESCRIPTION
X	X	D3391-015	AFT TUBE ASSEMBLY
		D3391-025	AFT TUBE ASSEMBLY
1	1	D6014-090	AFT TUBE
1	1	D2646	AFT CAP
1	1	D3537-1	WEARPAD
1	1	D3537-7	WEARPAD
1	1	D3553-1	GASKET
1	1	D3553-3	GASKET
14	4	D3670-4200	SPACER
2	2	D3672-1	WASHER
14	14	AELS-1032-130	INSERT
12	12	AELS-1032-225	INSERT
4		ALS4-428-165	INSERT
6	6	AN3C4A	BOLT
4	4	AN3C5A	BOLT
10	10	AN960C10L	WASHER



DRILL Ø0.391  
CBORE Ø0.516 X 0.040 DEEP  
INSTALL ALS4-428-165 INSERT  
4 PL



CBORE HOLES MARKED CB1-CB4 AS FOLLOWS AND  
INSTALL AELS-1032-XXX AFTER FINISH AS NOTED

HOLES MARKED	QTY D3391-015	QTY D3391-025	CBORE	P/N
CB1	12	12	Ø0.430 X 0.170	AELS-1032-225
CB2	4	4	Ø0.430 X 0.170	AELS-1032-130
CB3	6	6	Ø0.430 X 0.040	AELS-1032-130
CB4	4	4	NONE	AELS-1032-130

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## Jason Murdoch

---

**From:** Peter Hum [phum@dartaero.com]  
**Sent:** September 22, 2008 11:01 AM  
**To:** 'Jason Murdoch'  
**Cc:** 'L Lacelle'; 'Mike Petsche'  
**Subject:** RE: tri-beam mid tube

Jason,

Sorry for not getting back to you sooner. Late last week I had a look at the affected mid tubes (I think there were 5 or 6 of them).

With reference to Section Y-Y of D3391 Rev H (page 5 and 6), nominally this section is 0.70 (+0.00/-0.10) from the skidtube ends. It is acceptable (for the affected batches only) to have this depth to be 0.800" (+0.000).

Anything above 0.800", I would recommend that the part be scrapped.

Peter

**From:** Jason Murdoch [mailto:jmurdoch@dartaero.com]  
**Sent:** Monday, September 22, 2008 10:47 AM  
**To:** 'Peter Hum (E-mail)'  
**Cc:** 'L Lacelle'  
**Subject:** tri-beam mid tube

Hi Petey,  
Have you decided weather or not the tri-beam mid-tubes are salvageable or not?  
Dan P wants to know, and if they are no good I would like e-mail confirmation.  
Thanks,

Jason Murdoch  
**Qc. Coordinator**  
jmurdoch@dartaero.com

## Jason Murdoch

---

**From:** David Shepherd [dshepherd@dartaero.com]  
**Sent:** November 7, 2008 11:38 PM  
**To:** 'Peter Hum'  
**Cc:** 'Jason Murdoch'; 'Mike Petsche'  
**Subject:** RE: Tri-beam deviation

Peter/Jason,

Sorry for the slow response.

My preference would be to accept the holes at 0.297 diameter rather than plugging and re-drilling.

David

---

**From:** Peter Hum [mailto:phum@dartaero.com]  
**Sent:** Monday, November 03, 2008 2:27 PM  
**To:** dshepherd@dartaero.com  
**Subject:** Tri-beam deviation

David,

See below. The holes are thru holes on the mid-tube

I'm inclined to grudgingly accept this because of the \$\$ of mfg. of the skidtube

What do you think?

Peter

---

**From:** Jason Murdoch [mailto:jmurdoch@dartaero.com]  
**Sent:** Monday, November 03, 2008 10:41 AM  
**To:** 'Peter Hum'  
**Cc:** 'Mike Petsche'  
**Subject:** FW:

I never got an answer for this.

Jason Murdoch

**Qc. Coordinator**

jmurdoch@dartaero.com

---

**From:** Jason Murdoch [mailto:jmurdoch@dartaero.com]  
**Sent:** October 22, 2008 3:28 PM  
**To:** 'David Shepherd'  
**Subject:**

They drilled the 7 wearplate holes for the aft section on the D3391-023 mid-tube to 0.297 by mistake.

The fwd tube has already been transfer drilled....shitty.

So do you think we can leave the holes at 0.297, or is it acceptable to weld, and re-drill to 0.250?

Barclay has a brass plug to put inside the tube to eliminate any weld from going inside.

10/11/2008